



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,574	07/21/2004	Igor Touzov		4573
34185	7590	03/14/2006		
IGOR V TOUZOV 311 CASTLE HAYNE DRIVE CARY, NC 27519			EXAMINER GARBER, CHARLES D	
			ART UNIT 2856	PAPER NUMBER

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/710,574	Applicant(s) TOUZOV, IGOR	
	Examiner Charles D. Garber	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

Applicant's arguments filed 02/17/2006 have been fully considered but they are not persuasive.

Applicant did not particularly point out the patentable novelty with respect to the Sundaresan and Bassim references.

MPEP 714.04 states "In the consideration of claims in an amended case where no attempt is made to point out the patentable novelty, the claims should not be allowed. See 37 CFR 1.111 and MPEP § 714.02. An amendment failing to point out the patentable novelty which the applicant believes the claims present in view of the state of the art disclosed by the references cited or the objections made may be held to be not fully responsive and a time period set to furnish a proper reply if the statutory period has expired or almost expired (MPEP § 714.03). However, if the claims as amended are clearly open to rejection on grounds of record, a final rejection should generally be made." Examiner considers the Sundaresan and Bassim references still apply under 35 USC 102, hence, this action will be made final.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-4, 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2856

Examiner does not consider one having ordinary skill in the art would understand what is meant by a plurality of sensors could accounting for at least one sensor.

Examiner is unable to examine this claim on the merits

Claims 3, 4, 10 and 11 depending from indefinite claim 2 are indefinite for the same reason.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-5, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Sundaresan et al. (US Patent 6,399,939).

Regarding claim 1, Sundaresan discloses a “sensor array for nondestructively monitoring a structure to detect a critical event” (abstract) related to “small damage” (column 1 lines 35-40) where the structure may be contained on “military helicopters, missiles, tanks, aircraft and other static or dynamic structures”.

The method of Sundaresan’s device uses only information obtained through a set of mounted sensors 14 that measure acoustic waves in the structure which is a physical properties of the structure. CPU 30 that “assembles the processed information sent by the sensor nodes 14, and assesses any damage growth that may be occurring in the structure” (column 4 lines 37-39) may be considered to be analyzing information from

Art Unit: 2856

sensor(s) by automatic means to determine presence of...characteristics specific to the subject as in the instant invention.

Sundaresan discloses "The sensor array also may further include a threshold detector for detecting an output exceeding a predetermined threshold level and providing an alarm signal when the output exceeds the predetermined threshold level." The threshold level is considered to be a priory preset defined characteristic as in the instant invention alternative embodiment.

Examiner considers the method Sundaresan employs may operate (in other words "provide results" as in the instant invention) even if the sensors do not acquire "acoustic emission or other short term unrepeatable events originated by material composing" a subject as in the instant invention. Sundaresan explains "monitoring of AE in composites can be used as a passive method for damage detection." Sundaresan's passive detection would properly return no alarm if no acoustic emission or other short term unrepeatable events originated by material composing because there would be no output exceeding the predetermined threshold level.

As for claim 3, Sundaresan discloses the sensors may be fabricated from fibers or ribbons embedded "in layered composites" (column 5 lines 1-28) which is considered to be built-in.

As for claim 4, Sundaresan discloses "The plurality of discrete sensor nodes may further be divided into discrete subgroups, termed unit cells, each located at a different structural location. For example, a subgroup could be part of each rotor blade of a helicopter or different armor panels of a tank to provide a degree of sensing the location

Art Unit: 2856

of the structural event in a specific element of the structure.” Sundaresan refers to the sensor arrays also as a “sensor network”.

As for claim 5, Sundaresan discloses the device will “detect damage to the structure by measuring AE waves generated by cracks in the material or breakage of fibers” and may “include a threshold detector for detecting an output exceeding a predetermined threshold level and providing an alarm signal when the output exceeds the predetermined threshold level”. Cracking sounds large enough to trigger an alarm may be considered unusual usage events or patterns as in the instant invention.

As for claims 10 and 11, Sundaresan in figure 4 shows power supplied through the sensor bus that forms the network. As the device is intended to be used on tanks and airplanes the power source is considered to autonomous.

Claims 1, 6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Bassim et al. (US Patent 4,609,994).

Bassim discloses “apparatus suitable for continuous monitoring of acoustic emission, and more particularly, to apparatus suitable for continuous, on-line, long-term monitoring of acoustic emission from large structures, such as pipelines, to detect incipient failure”. Figure 1 shows plural sensors 10 communicating with central control unit 11. The communication Bassim further discloses “Communications means 12 may be [by]...telephone lines and associated interfaces.”

Bassim includes only detectors 10 (no actuators) and is thus considered completely passive as in the instant invention. Loads that may initiate an acoustic emission result from normal pressure variations that occur in the pipeline (Background).

Bassim further discloses a "microprocessor periodically compares member of the set of base values with corresponding members of the set of emission parameters to determine the existence of a problem situation" (column 2 lines 48-52). The base values are considered to be substantively the same as the priory preset defined characteristic as in the instant invention alternative embodiment.

As with Sundaresan discussed above, Examiner considers the passive method of Bassim may operate (in other words "provide results" as in the instant invention) even if the sensors do not acquire "acoustic emission or other short term unrepeatable events originated by material composing" a subject as in the instant invention. Bassim's passive detection would properly return no alarm if no acoustic emission or other short term unrepeatable events originated by material composing.

Claims 1, 3-5, 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Lewis, III et al. (US Patent 6,386,038).

Lewis discloses an acoustic apparatus and inspection method that uses only data from plural sensors 10 to classify damage (see figure 2, abstract). Lewis also discloses a method of training the apparatus mapping unit using acoustic data received from an object that has no damage (see figure 5, column 12 line 40 to column 13 line 10). This is considered to be substantively the same as priory defined characteristics computed by a computing means at some early time frame as in the instant invention

Art Unit: 2856

alternative embodiment. Lewis discloses two modes of operation shown in figure 10 including a passive mode (steps 60, 62). The other mode is an active mode that is only used in the event of damage discovered in passive mode.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles D. Garber whose telephone number is (571) 272-2194. The examiner can normally be reached on 8:00 a.m. to 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2856

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles D. Garber
Primary Examiner
Art Unit 2856

A handwritten signature in black ink, appearing to read 'CDG', with a long horizontal stroke extending to the right.

cdg